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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/098,679	03/15/2002	David John DiGiovanni	119.0008	5699

27997 7590 04/23/2003

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DURHAM, NC 27713-7736

[REDACTED] EXAMINER

LIN, TINA M

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2874

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/098,679	DIOGIOVANNI ET AL.
	Examiner	Art Unit
	Tina M Lin	2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-12 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 15 March 2002 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,453,102 B1 to Dong et al. Dong et al. discloses a dispersion compensation module with an input and output port and a predetermined length of a dispersion compensating fiber comprising of a plurality of separate lengths of dispersion compensating fibers spliced together and connected to the input and output ports. Furthermore, Dong et al. discloses the dispersion compensating fiber having a core and cladding region, where each segment of the dispersion compensating fiber has an inner and outer radii. But Dong et al. fails to disclose the fiber to be designed to have a wavelength inflection point at a wavelength within the operating bandwidth, a dispersion compensating fiber to have a dispersion curve of the entire dispersion fiber and the individual fibers that substantially matches the relative dispersion curve of a transmission fiber over a bandwidth and each segment of the fibers to have a relative refractive index difference. However, it would have been obvious at the time the invention was made to design a dispersion compensating fiber to have a wavelength inflection point at a wavelength within the operating bandwidth in order to obtain optimal results of the dispersion-compensating module. Also, it is well known in the art to match dispersion curves of fibers to the dispersion curve of the transmission fiber for uniformity, therefore it would have been obvious at the time the invention

was made to a person having ordinary skill in the art to have a dispersion compensating fiber to have a dispersion curve of the entire dispersion fiber and the individual fibers that substantially matches the relative dispersion curve of a transmission fiber over a bandwidth. Also, since every dispersion compensating fiber has a refractive index, there would have a relative refractive index difference since every fiber is not exactly identical and each dispersion compensating fiber is chosen to have different refractive indexes in order to obtain optimal properties before spliced together. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art for their to be a refractive index difference between segments of a dispersion compensating fiber.

Claims 5, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,453,102 B1 to Dong et al. as applied to claim 4 above, and further in view of U.S. Patent 6,304,691 to Espindola et al. In regards to claim 5, Dong et al. discloses all stated above, but fails to disclose a wavelength bandwidth of more than 40 nm. But Dong et al. fails to mention a value for a wavelength bandwidth. However, Espindola et al. discloses a bandwidth of 30 nm with the possibility of increasing the bandwidth by making the grating longer in the fiber. (Column 5) Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have a bandwidth of 40nm or greater. In regards to claims 10 and 11, Dong et al. discloses a dispersion compensating fiber with a core and cladding region and a the dispersion compensating fiber with a relative dispersion slope near the $1.55 \mu\text{m}$ transmission wavelength. But, Dong et al. fails to mention the region to provide a relative slope that substantially matches a relative dispersion slops of a transmission fiber over at least a 40 nm wavelength bandwidth. However, Espindola et al. discloses a bandwidth of 30 nm with the

possibility of increasing the bandwidth by making the grating longer in the fiber. (Column 5) Furthermore, it would be optimal to match the slopes of the transmission fibers and the relative slopes of the core and cladding region for uniformity and consistency. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the core and cladding region to provide a relative slope that substantially matches the relative dispersion slopes of a transmission fiber over at least a 40 nm wavelength bandwidth.

Cited Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references C-H all discuss dispersion compensating fibers, different methods of use for them and a range of properties.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M Lin whose telephone number is (703) 305-1959. The examiner can normally be reached on Monday-Friday 8:30-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TML *ml*
April 17, 2003

Akmal
AKM ENAYET ULLAH
PRIMARY EXAMINER